WHAT IS CLAIMED IS:

1. A numerical control oscillator comprising:

a phase accumulator for accumulating input phase difference data to generate phase data, said phase accumulator including a register for storing and outputting said phase data, and a calculator for one of adding and subtracting said input phase difference data and said phase data from said register; and

a memory for storing a phase/amplitude conversion table to output amplitude data corresponding to said phase data generated by said phase accumulator,

said numerical control oscillator outputting a signal of a sampling frequency Fs, wherein:

if an upper limit of a desired frequency setting interval of an output signal is FD and, K and L are arbitrary integers,

said calculator of said phase accumulator is performs one of adding and subtracting said input phase difference data and said phase data from said register by a modulo operation taking a nearest integer of M as a modulus, where M = Fs/FDxK/L; and

said phase/amplitude conversion table outputs a signal set to a frequency setting interval of a dF step, where dF = FD/KxL.

2. A digital down-converter comprising a frequency converter, the frequency converter including a numerical control oscillator as a local oscillator and serving to frequency-convert an input signal sampled at a sampling frequency Fs, said digital down-converter converting and outputting said input signal into an output signal with a frequency lower than that of said input signal, said numerical control oscillator having:

a phase accumulator for accumulating input phase difference data to generate phase data, said phase accumulator including a register for storing and outputting said phase data, and a calculator for one of adding and subtracting said input phase difference data and said phase data from said register; and

a memory for storing a phase/amplitude conversion table to output amplitude data corresponding to said phase data generated by said phase accumulator,

said numerical control oscillator outputting a signal of the sampling frequency Fs, wherein, if a desired frequency setting interval of said input signal is FD and K and L are arbitrary integers, said frequency converter is adapted to frequency-convert said input

signal using a specific signal output from said local oscillator and set to a frequency setting interval of a dF step, where dF = FD/KxL, said local oscillator outputting the specific signal by accumulating said phase difference data by a modulo operation taking a nearest integer of M as a modulus, where M = Fs/FDxK/L.

3. A digital down-converter comprising a first frequency converter, the first frequency converter including a numerical control oscillator as a first local oscillator and serving to frequency-convert an input signal sampled at a sampling frequency Fs1, and a second frequency converter, the second frequency converter including an identical numerical control oscillator as included in the first frequency converter as a second local oscillator and serving to secondarily frequency-convert an output signal from said first frequency converter, said digital down-converter converting and outputting said input signal into an output signal with a frequency lower than that of said input signal by two frequency conversions, said numerical control oscillator having:

a phase accumulator for accumulating input phase difference data to generate phase data, said phase accumulator including a register for storing and outputting said phase data, and a calculator for one of adding and subtracting said input phase difference data and said phase data from said register; and

a memory for storing a phase/amplitude conversion table to output amplitude data corresponding to said phase data generated by said phase accumulator,

said numerical control oscillator outputting a signal of the sampling frequency, wherein:

if a desired frequency setting interval of said input signal is FD and K1, K2 and L1 are arbitrary integers,

said first frequency converter is adapted to frequency-convert said input signal using a first specific signal output from said first local oscillator and set to a frequency setting interval of an FD1 step, where FD1 = FD/K1xL1, said first local oscillator outputting the first specific signal by accumulating said phase difference data by a modulo operation taking a nearest integer of M1 as a modulus, where M1 = Fs1/FDxK1/L1; and

said second frequency converter is adapted to, if a sampling frequency of the output signal from said first frequency converter is Fs2, frequency-convert said output signal from said first frequency converter using a second specific signal output from said second local oscillator and set to a frequency setting interval of an FD2 step, where FD2 = (FD mod FD1)/K2, said second local oscillator outputting the second specific signal

by accumulating said phase difference data by a modulo operation taking a nearest integer of M2 as a modulus, where M2 = Fs2/(FD mod FD1)xK2.

4. The digital down-converter as set forth in claim 3, wherein said second frequency converter is adapted to stop the frequency conversion.

5. A digital down-converter comprising a first frequency converter, the first frequency converter including a numerical control oscillator as a first local oscillator and serving to frequency-convert an input signal sampled at a sampling frequency Fs1, and a second frequency converter, the second frequency converter including an identical numerical control oscillator as the first frequency converter as a second local oscillator and serving to secondarily frequency-convert an output signal from said first frequency converter, said digital down-converter converting and outputting said input signal into an output signal with a frequency lower than that of said input signal by two frequency conversions, said numerical control oscillator having:

a phase accumulator for accumulating input phase difference data to generate phase data, said phase accumulator including a register for storing and outputting said phase data, and a calculator for one of adding and subtracting said input phase difference data and said phase data from said register; and

a memory for storing a phase/amplitude conversion table to output amplitude data corresponding to said phase data generated by said phase accumulator,

said numerical control oscillator outputting a signal of the sampling frequency, wherein:

if a desired frequency setting interval of said input signal is FD, and K1, K2 and L1 are arbitrary integers,

said first frequency converter is adapted to frequency-convert said input signal using a first specific signal output from said first local oscillator and set to a frequency setting interval of an FD1 step, where FD1 = FD/K1xL1, said first local oscillator outputting the first specific signal by accumulating said phase difference data by a modulo operation taking a nearest integer of M1 as a modulus, where M1 = Fs1/FDxK1/L1; and

said second frequency converter is adapted to, if a sampling frequency of the output signal from said first frequency converter is Fs2, frequency-convert said output signal from said first frequency converter using a second specific signal output from said second local oscillator and set to a frequency setting interval of an FD2 step, where FD2

= (FD1 mod FD)/K2, said second local oscillator outputting the second specific signal by accumulating said phase difference data by a modulo operation taking a nearest integer of M2 as a modulus, where M2 = Fs2/(FD1 mod FD)xK2.

6. The digital down-converter as set forth in claim 5, wherein said second frequency converter is adapted to stop the frequency conversion.

7. A digital down-converter comprising a first frequency converter, the first frequency converter including a numerical control oscillator as a first local oscillator and serving to frequency-convert an input signal sampled at a sampling frequency Fs1, and a second frequency converter, the second frequency converter including an identical numerical control oscillator as in the first frequency converter as a second local oscillator and serving to secondarily frequency-convert an output signal from said first frequency converter, said digital down-converter converting and outputting said input signal into an output signal with a frequency lower than that of said input signal by two frequency conversions, said numerical control oscillator having:

a phase accumulator for accumulating input phase difference data to generate phase data, said phase accumulator including a register for storing and outputting said phase data, and a calculator for one of adding and subtracting said input phase difference data and said phase data from said register; and

a memory for storing a phase/amplitude conversion table to output amplitude data corresponding to said phase data generated by said phase accumulator,

said numerical control oscillator outputting a signal of the sampling frequency, wherein:

if a desired frequency setting interval of said input signal is FD and K1, K2 and L1 are arbitrary integers,

said first frequency converter is adapted to frequency-convert said input signal using a first specific signal output from said first local oscillator and set to a frequency setting interval of an FD1 step, where FD1 = FD/K1xL1, said first local oscillator outputting the first specific signal by accumulating said phase difference data by a modulo operation taking a nearest integer of M1 as a modulus, where M1 = Fs1/FDxK1/L1; and

said second frequency converter is adapted to, if a sampling frequency of the output signal from said first frequency converter is Fs2, frequency-convert said output signal from said first frequency converter using a second specific signal output from said

second local oscillator and set to a frequency setting interval of an FD2 step, where FD2 = FD/K2, said second local oscillator outputting the second specific signal by accumulating said phase difference data by a modulo operation taking a nearest integer of M2 as a modulus, where M2 = Fs2/FDxK2.

8. The digital down-converter as set forth in claim 7, wherein said second frequency converter is adapted to stop the frequency conversion.

9. A digital up-converter comprising a frequency converter, the frequency converter including a numerical control oscillator as a local oscillator and serving to frequency-convert an input signal, said digital up-converter converting said input signal into a signal with a frequency higher than that of said input signal and outputting the converted signal as an output signal sampled at a sampling frequency Fs, said numerical control oscillator having:

a phase accumulator for accumulating input phase difference data to generate phase data, said phase accumulator including a register for storing and outputting said phase data, and a calculator for one of adding and subtracting said input phase difference data and said phase data from said register; and

a memory for storing a phase/amplitude conversion table to output amplitude data corresponding to said phase data generated by said phase accumulator,

said numerical control oscillator outputting a signal of the sampling frequency Fs,

wherein, if a desired frequency setting interval of said output signal is FD and K and L are arbitrary integers, said frequency converter is adapted to frequency-convert said input signal using a specific signal output from said local oscillator and set to a frequency setting interval of a dF step, where dF = FD/KxL, said local oscillator outputting the specific signal by accumulating said phase difference data by a modulo operation taking a nearest integer of M as a modulus, where M = Fs/FDxK/L.

10. A digital up-converter comprising a first frequency converter, the first frequency converter including a numerical control oscillator as a first local oscillator and serving to frequency-convert an input signal, and a second frequency converter, the second frequency converter including an identical numerical control oscillator as included in the first frequency converter as a second local oscillator and serving to secondarily frequency-convert an output signal from said first frequency converter, said

digital up-converter performing two frequency conversions to convert said input signal into a signal with a frequency higher than that of said input signal and output the converted signal as an output signal sampled at a sampling frequency Fs2, said numerical control oscillator having:

a phase accumulator for accumulating input phase difference data to generate phase data, said phase accumulator including a register for storing and outputting said phase data, and a calculator for one of adding and subtracting said input phase difference data and said phase data from said register; and

a memory for storing a phase/amplitude conversion table to output amplitude data corresponding to said phase data generated by said phase accumulator,

said numerical control oscillator outputting a signal of the sampling frequency,

wherein:

if a desired frequency setting interval of said output signal is FD, and K1, K2, and L2 are arbitrary integers,

said second frequency converter is adapted to frequency-convert the output signal from said first frequency converter using a first specific signal output from said second local oscillator and set to a frequency setting interval of an FD2 step, where FD2 = FD/K2xL2, said second local oscillator outputting the first specific signal by accumulating said phase difference data by a modulo operation taking a nearest integer of M2 as a modulus, where M2 = Fs2/FDxK2/L2; and

said first frequency converter is adapted to, if a sampling frequency of said input signal is Fs1, frequency-convert said input signal using a second specific signal output from said first local oscillator and set to a frequency setting interval of an FD1 step, where FD1 = (FD mod FD2)/K1, said first local oscillator outputting the second specific signal by accumulating said phase difference data by a modulo operation taking a nearest integer of M1 as a modulus, where M1 = Fs1/(FD mod FD2)xK1.

11. The digital up-converter as set forth in claim 10, wherein said first frequency converter is adapted to stop the frequency conversion.

12. A digital up-converter comprising a first frequency converter, the first frequency converter including a numerical control oscillator as a first local oscillator and serving to frequency-convert an input signal, and a second frequency converter, the second frequency converter including an identical numerical control oscillator as included in the first frequency converter as a second local oscillator and serving to

secondarily frequency-convert an output signal from said first frequency converter, said digital up-converter performing two frequency conversions to convert said input signal into a signal with a frequency higher than that of said input signal and output the converted signal as an output signal sampled at a sampling frequency Fs2, said numerical control oscillator having:

a phase accumulator for accumulating input phase difference data to generate phase data, said phase accumulator including a register for storing and outputting said phase data, and a calculator for one of adding and subtracting said input phase difference data and said phase data from said register; and

a memory for storing a phase/amplitude conversion table to output amplitude data corresponding to said phase data generated by said phase accumulator,

said numerical control oscillator outputting a signal of the sampling frequency, wherein:

if a desired frequency setting interval of said output signal is FD and K1, K2 and L2 are arbitrary integers,

said second frequency converter is adapted to frequency-convert the output signal from said first frequency converter using a first specific signal output from said second local oscillator and set to a frequency setting interval of an FD2 step, where FD2 = FD/K2xL2, said second local oscillator outputting the first specific signal by accumulating said phase difference data by a modulo operation taking a nearest integer of M2 as a modulus, where M2 = Fs2/FDxK2/L2; and

said first frequency converter is adapted to, if a sampling frequency of said input signal is Fs1, frequency-convert said input signal using a second specific signal output from said first local oscillator and set to a frequency setting interval of an FD1 step, where FD1 = (FD2 mod FD)/K1, said first local oscillator outputting the second specific signal by accumulating said phase difference data by a modulo operation taking a nearest integer of M1 as a modulus, where M1 = Fs1/(FD2 mod FD)xK1.

13. The digital up-converter as set forth in claim 12, wherein said first frequency converter is adapted to stop the frequency conversion.

14. A digital up-converter comprising a first frequency converter, the first frequency converter including a numerical control oscillator as a first local oscillator and serving to frequency-convert an input signal, and a second frequency converter, the second frequency converter including an identical numerical control oscillator as

included in the first frequency converter as a second local oscillator and serving to secondarily frequency-convert an output signal from said first frequency converter, said digital up-converter performing two frequency conversions to convert said input signal into a signal with a frequency higher than that of said input signal and output the converted signal as an output signal sampled at a sampling frequency Fs2, said numerical control oscillator having:

a phase accumulator for accumulating input phase difference data to generate phase data, said phase accumulator including a register for storing and outputting said phase data, and a calculator for one of adding and subtracting said input phase difference data and said phase data from said register; and

a memory for storing a phase/amplitude conversion table to output amplitude data corresponding to said phase data generated by said phase accumulator,

said numerical control oscillator outputting a signal of the sampling frequency, wherein:

if a desired frequency setting interval of said output signal is FD and K1, K2 and L2 are arbitrary integers,

said second frequency converter is adapted to frequency-convert the output signal from said first frequency converter using a first specific signal output from said second local oscillator and set to a frequency setting interval of an FD2 step, where FD2 = FD/K2xL2, said second local oscillator outputting the first specific signal by accumulating said phase difference data by a modulo operation taking a nearest integer of M2 as a modulus, where M2 = Fs2/FDxK2/L2; and

said first frequency converter is adapted to, if a sampling frequency of said input signal is Fs1, frequency-convert said input signal using a second specific signal output from said first local oscillator and set to a frequency setting interval of an FD1 step, where FD1 = FD/K1, said first local oscillator outputting the second specific signal by accumulating said phase difference data by a modulo operation taking a nearest integer of M1 as a modulus, where M1 = Fs1/FDxK1.

15. The digital up-converter as set forth in claim 14, wherein said first frequency converter is adapted to stop the frequency conversion.

16. A receiver comprising a first frequency converter, the first frequency converter including a first local oscillator and serving to frequency-convert a received signal, said first local oscillator including a numerical control oscillator operating at a

sampling frequency Fs and a phase locked loop (PLL) circuit having a multiplication ratio P (P is an integer) and acting to receive the output signal from the numerical control oscillator as a reference signal, a second frequency converter, the second frequency converter including an identical numerical control oscillator as included in the first local oscillator as a second local oscillator and serving to secondarily frequency-convert an output signal from said first frequency converter, and a demodulator for demodulating an output signal from said second frequency converter to extract received data therefrom, said receiver converting said received signal into a baseband received signal with a frequency lower than that of said received signal by two frequency conversions and extracting the received data from the converted baseband received signal, said numerical control oscillator having:

a phase accumulator for accumulating input phase difference data to generate phase data, said phase accumulator including a register for storing and outputting said phase data, and a calculator for one of adding and subtracting said input phase difference data and said phase data from said register; and

a memory for storing a phase/amplitude conversion table to output amplitude data corresponding to said phase data generated by said phase accumulator,

said numerical control oscillator outputting a signal of the sampling frequency, wherein:

if a desired frequency setting interval of said received signal is FD and K1, K2 and L1 are arbitrary integers,

said first frequency converter is adapted to frequency-convert said received signal using a first specific signal output from said first local oscillator and set to a frequency setting interval of an FDP step, where FDP = FD/K1xL1, said first local oscillator outputting the first specific signal by accumulating said phase difference data by a modulo operation taking a nearest integer of M1 as a modulus, where M1 = Fs/FDxK1/L1xP; and

said second frequency converter is adapted to, if a sampling frequency of the output signal from said first frequency converter is Fs1, frequency-convert said output signal from said first frequency converter using a second specific signal output from said second local oscillator and set to a frequency setting interval of an FD2 step, where FD2 = (FD mod FDP)/K2, said second local oscillator outputting the second specific signal by accumulating said phase difference data by a modulo operation taking a nearest integer of M2 as a modulus, where M2 = Fs1/(FD mod FDP)xK2.

17. The receiver as set forth in claim 16, wherein said second frequency converter is adapted to stop the frequency conversion.

18. A receiver comprising a first frequency converter including a first local oscillator and serving to frequency-convert a received signal, said first local oscillator including a numerical control oscillator operating at a sampling frequency Fs and a PLL circuit having a multiplication ratio P (P is an integer) and acting to receive the output signal from the numerical control oscillator as a reference signal, a second frequency converter including an identical numerical control oscillator as included in the first local oscillator as a second local oscillator and serving to secondarily frequency-convert an output signal from said first frequency converter, and a demodulator for demodulating an output signal from said second frequency converter to extract received data therefrom, said receiver converting said received signal into a baseband received signal with a frequency lower than that of said received signal by two frequency conversions and extracting the received data from the converted baseband received signal, said numerical control oscillator having:

a phase accumulator for accumulating input phase difference data to generate phase data, said phase accumulator including a register for storing and outputting said phase data, and a calculator for one of adding and subtracting said input phase difference data and said phase data from said register; and

a memory for storing a phase/amplitude conversion table to output amplitude data corresponding to said phase data generated by said phase accumulator,

said numerical control oscillator outputting a signal of the sampling frequency, wherein:

if a desired frequency setting interval of said received signal is FD, and K1, K2, and L1 are arbitrary integers,

said first frequency converter is adapted to frequency-convert said received signal using a first specific signal output from said first local oscillator and set to a frequency setting interval of an FDP step, where FDP = FD/K1xL1, said first local oscillator outputting the first specific signal by accumulating said phase difference data by a modulo operation taking a nearest integer of M1 as a modulus, where M1 = Fs/FDxK1/L1xP; and

said second frequency converter is adapted to, if a sampling frequency of the output signal from said first frequency converter is Fs1, frequency-convert said output signal from said first frequency converter using a second specific signal output from said

second local oscillator and set to a frequency setting interval of an FD2 step, where FD2 = (FDP mod FD)/K2, said second local oscillator outputting the second specific signal by accumulating said phase difference data by a modulo operation taking a nearest integer of M2 as a modulus, where M2 = Fs1/(FDP mod FD)xK2.

19. The receiver as set forth in claim 18, wherein said second frequency converter is adapted to stop the frequency conversion.

20. A receiver comprising a first frequency converter including a first local oscillator and serving to frequency-convert a received signal, said first local oscillator including a numerical control oscillator operating at a sampling frequency Fs and a PLL circuit having a multiplication ratio P (P is an integer) and acting to receive the output signal from the numerical control oscillator as a reference signal, a second frequency converter including an identical numerical control oscillator as included in the first local oscillator as a second local oscillator and serving to secondarily frequency-convert an output signal from said first frequency converter, and a demodulator for demodulating an output signal from said second frequency converter to extract received data therefrom, said receiver converting said received signal into a baseband received signal with a frequency lower than that of said received signal by two frequency conversions and extracting the received data from the converted baseband received signal, said numerical control oscillator having:

a phase accumulator for accumulating input phase difference data to generate phase data, said phase accumulator including a register for storing and outputting said phase data, and a calculator for one of adding and subtracting said input phase difference data and said phase data from said register; and

a memory for storing a phase/amplitude conversion table to output amplitude data corresponding to said phase data generated by said phase accumulator,

said numerical control oscillator outputting a signal of the sampling frequency, wherein:

if a desired frequency setting interval of said received signal is FD, and K1, K2, and L1 are arbitrary integers,

said first frequency converter is adapted to frequency-convert said received signal using a first specific signal output from said first local oscillator and set to a frequency setting interval of an FDP step, where FDP = FD/K1xL1, said first local oscillator outputting the first specific signal by accumulating said phase difference data

by a modulo operation taking a nearest integer of M1 as a modulus, where M1 = Fs/FDxK1/L1xP; and

said second frequency converter is adapted to, if a sampling frequency of the output signal from said first frequency converter is Fs1, frequency-convert said output signal from said first frequency converter using a second specific signal output from said second local oscillator and set to a frequency setting interval of an FD2 step, where FD2 = FD/K2, said second local oscillator outputting the second specific signal by accumulating said phase difference data by a modulo operation taking a nearest integer of M2 as a modulus, where M2 = Fs1/FDxK2.

21. The receiver as set forth in claim 20, wherein said second frequency converter is adapted to stop the frequency conversion.

22. A transmitter comprising a modulator for modulating and outputting a baseband transmit signal based on transmit data, a first frequency converter including a numerical control oscillator as a first local oscillator and serving to frequency-convert the output signal from said modulator, a second frequency converter including a second local oscillator and serving to secondarily frequency-convert an output signal from said first frequency converter, said second local oscillator including an identical numerical control oscillator as included in the first frequency converter operating at a sampling frequency Fs and a PLL circuit having a multiplication ratio P (P is an integer) and acting to receive the output signal from the numerical control oscillator as a reference signal, said transmitter converting and outputting said baseband transmit signal into a transmit signal with a frequency higher than that of said baseband transmit signal by two frequency conversions, said numerical control oscillator having:

a phase accumulator for accumulating input phase difference data to generate phase data, said phase accumulator including a register for storing and outputting said phase data, and a calculator for one of adding and subtracting said input phase difference data and said phase data from said register; and

a memory for storing a phase/amplitude conversion table to output amplitude data corresponding to said phase data generated by said phase accumulator,

said numerical control oscillator outputting a signal of the sampling frequency, wherein:

if a desired frequency setting interval of said transmit signal is FD, and K1, K2, and L2 are arbitrary integers,

said second frequency converter is adapted to frequency-convert the output signal from said first frequency converter using a first specific signal output from said second local oscillator and set to a frequency setting interval of an FDP step, where FDP = FD/K2xL2, said second local oscillator outputting the first specific signal by accumulating said phase difference data by a modulo operation taking a nearest integer of M2 as a modulus, where M2 = Fs/FDxK2/L2xP; and

said first frequency converter is adapted to, if a sampling frequency of the output signal from said modulator is Fs1, frequency-convert said output signal from said modulator using a second specific signal output from said first local oscillator and set to a frequency setting interval of an FD1 step, where FD1 = (FD mod FDP)/K1, said first local oscillator outputting the second specific signal by accumulating said phase difference data by a modulo operation taking a nearest integer of M1 as a modulus, where M1 = Fs1/(FD mod FDP)xK1.

23. The transmitter as set forth in claim 22, wherein said first frequency converter is adapted to stop the frequency conversion.

24. A transmitter comprising a modulator for modulating and outputting a baseband transmit signal based on transmit data, a first frequency converter including a numerical control oscillator as a first local oscillator and serving to frequency-convert the output signal from said modulator, a second frequency converter including a second local oscillator and serving to secondarily frequency-convert an output signal from said first frequency converter, said second local oscillator including an identical numerical control oscillator as included in the first frequency converter operating at a sampling frequency Fs and a PLL circuit having a multiplication ratio P (P is an integer) and acting to receive the output signal from the numerical control oscillator as a reference signal, said transmitter converting and outputting said baseband transmit signal into a transmit signal with a frequency higher than that of said baseband transmit signal by two frequency conversions, said numerical control oscillator having:

a phase accumulator for accumulating input phase difference data to generate phase data, said phase accumulator including a register for storing and outputting said phase data, and a calculator for one of adding and subtracting said input phase difference data and said phase data from said register; and

a memory for storing a phase/amplitude conversion table to output amplitude data corresponding to said phase data generated by said phase accumulator,

said numerical control oscillator outputting a signal of the sampling frequency, wherein:

if a desired frequency setting interval of said transmit signal is FD, and K1, K2, and L2 are arbitrary integers,

said second frequency converter is adapted to frequency-convert the output signal from said first frequency converter using a first specific signal output from said second local oscillator and set to a frequency setting interval of an FDP step, where FDP = FD/K2xL2, said second local oscillator outputting the first specific signal by accumulating said phase difference data by a modulo operation taking a nearest integer of M2 as a modulus, where M2 = Fs/FDxK2/L2xP; and

said first frequency converter is adapted to, if a sampling frequency of the output signal from said modulator is Fs1, frequency-convert said output signal from said modulator using a second specific signal output from said first local oscillator and set to a frequency setting interval of an FD1 step, where FD1 = (FDP mod FD)/K1, said first local oscillator outputting the second specific signal by accumulating said phase difference data by a modulo operation taking a nearest integer of M1 as a modulus, where M1 = Fs1/(FDP mod FD)xK1.

25. The transmitter as set forth in claim 24, wherein said first frequency converter is adapted to stop the frequency conversion.

26. A transmitter comprising a modulator for modulating and outputting a baseband transmit signal based on transmit data, a first frequency converter including a numerical control oscillator as a first local oscillator and serving to frequency-convert the output signal from said modulator, a second frequency converter including a second local oscillator and serving to secondarily frequency-convert an output signal from said first frequency converter, said second local oscillator including an identical numerical control oscillator as included in the first frequency converter operating at a sampling frequency Fs and a PLL circuit having a multiplication ratio P, where P is an integer, and acting to receive the output signal from the numerical control oscillator of claim 1 as a reference signal, said transmitter converting and outputting said baseband transmit signal into a transmit signal with a frequency higher than that of said baseband transmit signal by two frequency conversions, wherein:

if a desired frequency setting interval of said transmit signal is FD, and K1, K2, and L2 are arbitrary integers,

said second frequency converter is adapted to frequency-convert the output signal from said first frequency converter using a first specific signal output from said second local oscillator and set to a frequency setting interval of an FDP step, where FDP = FD/K2xL2, said second local oscillator outputting the first specific signal by accumulating said phase difference data by a modulo operation taking a nearest integer of M2 as a modulus, where M2 = Fs/FDxK2/L2xP; and

said first frequency converter is adapted to, if a sampling frequency of the output signal from said modulator is Fs1, frequency-convert said output signal from said modulator using a second specific signal output from said first local oscillator and set to a frequency setting interval of an FD1 step, where FD1 = FD/K1, said first local oscillator outputting the second specific signal by accumulating said phase difference data by a modulo operation taking a nearest integer of M1 as a modulus, where M1 = Fs1/FDxK1.

27. The transmitter as set forth in claim 26, wherein said first frequency converter is adapted to stop the frequency conversion.